CODE LETTERS FOR PROGRESS REPORT 187
Project 1108-13

	Code
International Paper Company-Panama City	F
-Springhill	V
West Virginia Pulp and Paper Company	C
Union Bag-Camp Paper Corporation	B
Continental Can Company, Inc.-Hopewell	Q
Owens-Illinois Glass Company-Jacksonville	K
St. Joe Paper Company	S
International Paper Company-Georgetown	P
Georgia Kraft Company-Macon	W
The Chesapeake Corporation of Virginia	L
Crown Zellerbach Corporation-Bogalusa	X
Continental Can Company, Inc.-Port Wentworth	A
Olin Mathieson Chemical Corporation	G
St. Regis Paper Company-Jacksonville	H
St. Regis Paper Company-Pensacola	J
Owens-Illinois Glass Company	E
Weyerhaeuser Company-N. C. Division	O
Georgia Kraft Company-Rome	I
Container Corporation of America-Fernandina Beach	M
Tennessee River Pulp and Paper Company	U
Crown Zellerbach Corporation-Antioch	D
Western Kraft Corporation-Albany	T
Waldorf-Hoerner Paper Products Company	N

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY

Project 1108-13

Report 187

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

February 1, 1964

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY

INTRODUCTION

As requested by the Technical Committee of the Fourdrinier Kraft Board Institute, Inc., the reports pertinent to the continuous base-line study on 42-lb. fourdrinier kraft linerboard have been prepared by The Institute of Paper Chemistry on a bimonthly basis instead of the previous monthly basis since August 1, 1961. The current report presents results obtained during the months of December, 1963 and January, 1964.

PRESENTATION AND DISCUSSION OF TEST RESULTS

Each sample lot received for evaluation during December and January was evaluated for basis weight, caliper, bursting strength, and Elmendorf tearing strength. The average strength results for each mill may be seen in Table I and are graphically presented in Fig. 1 to 5. In addition to a comparison of the current mill averages for the various tests, Table I also shows the current F.K.I. averages, the cumulative F.K.I. averages, and F.K.I. indexes. For each test, the current mill average represents the average obtained on all sample lots evaluated from a given mill during the current period, the current F.K.I. average represents the average of the current mill averages, and the cumulative F.K.I. average represents the average of the current F.K.I. averages for the previous twelve months excluding the current period. The F.K.I. index expressed in per cent is the ratio of the current F.K.I. average to the cumulative F.K.I. average.

In Table II, a tabulation of the number of sample lots submitted by each mill during the current period is shown.

Supplementary to the summary of basis weight data given in Table I, a tabulation is given in Table III of the amount by which the current basis weight average for each mill varies from the 42-lb. specification set forth in Rule 41.

Shown below from Table I are the maximum and minimum current mill averages and also the current and cumulative F.K.I. averages for each test.

TABLE I

SUMMARY OF COMPOSITE MILL AVERAGES--DECEMBER, 1963 AND JANUARY, 1964

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i.g.	Elmendorf Tear, g./sheet	
				In Machine	Cross Machine
A	42.6	12.9	115	297	355
B	42.9	12.3	113	316	355
C	42.8	12.9	104	325	366
D[a]					
E	42.3	12.6	111	372	405
F[a]					
G	No samples submitted.				
H	43.1	13.1	113	341	408
I	42.8	13.2	110	327	367
J	No samples submitted.				
K	42.8	11.7	109	362	413
L	43.6	13.0	114	385	407
M	43.2	12.7	110	385	422
N	42.2	13.1	112	352	376
O	42.7	12.9	107	313	367
P	43.9	12.9	111	340	396
Q	42.8	13.4	112	296	346
S	43.5	13.2	112	333	395
T	No samples submitted.				
U	43.4	13.0	115	299	357
V	43.6	12.4	118	317	370
W	42.7	12.2	117	318	384
X	No samples submitted.				
Current FKI average:	43.0	12.8	112	334	382
Cumulative FKI average:	42.9	12.7	110	333	380
FKI index, %	100.2	100.8	101.8	100.3	100.5

[a]Current mill averages have been omitted in compliance with Technical Committee's request that current mill averages based on evaluations of fewer than three sample lots of linerboard should be excluded from the summary table and from the calculation of the current FKI averages.

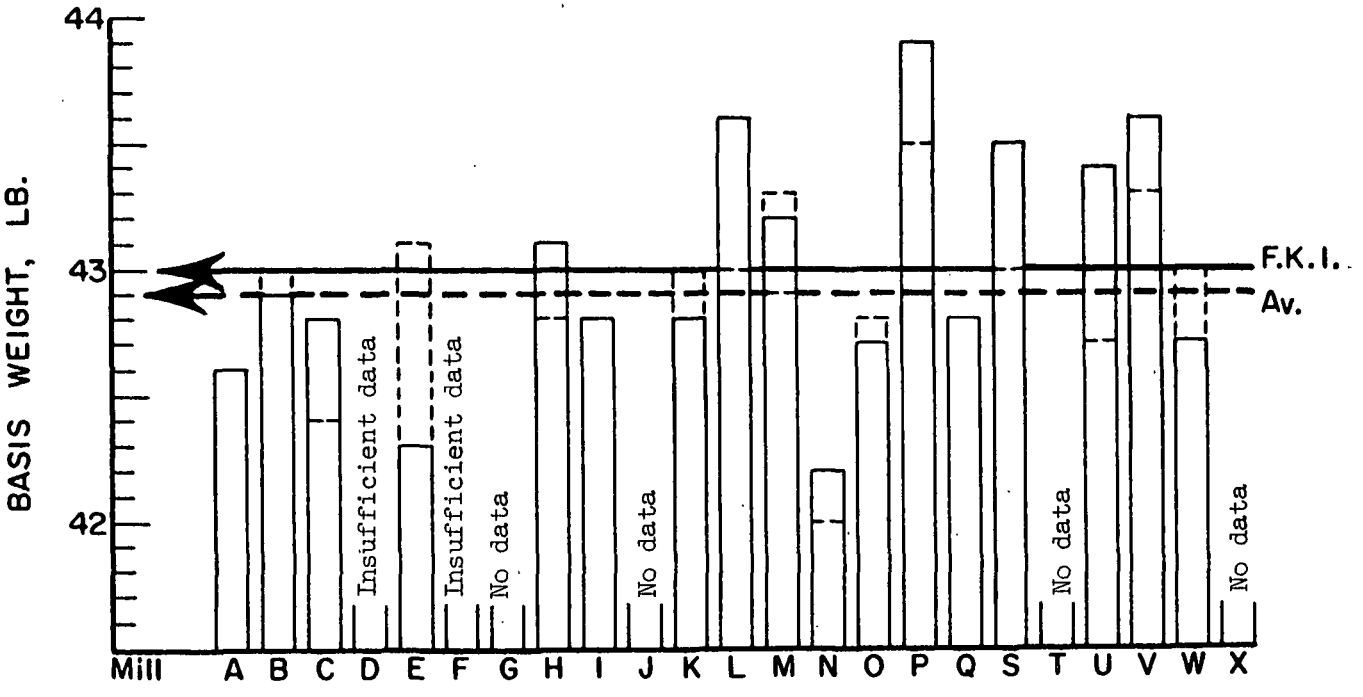

Figure 1. Comparison of Basis Weight Results

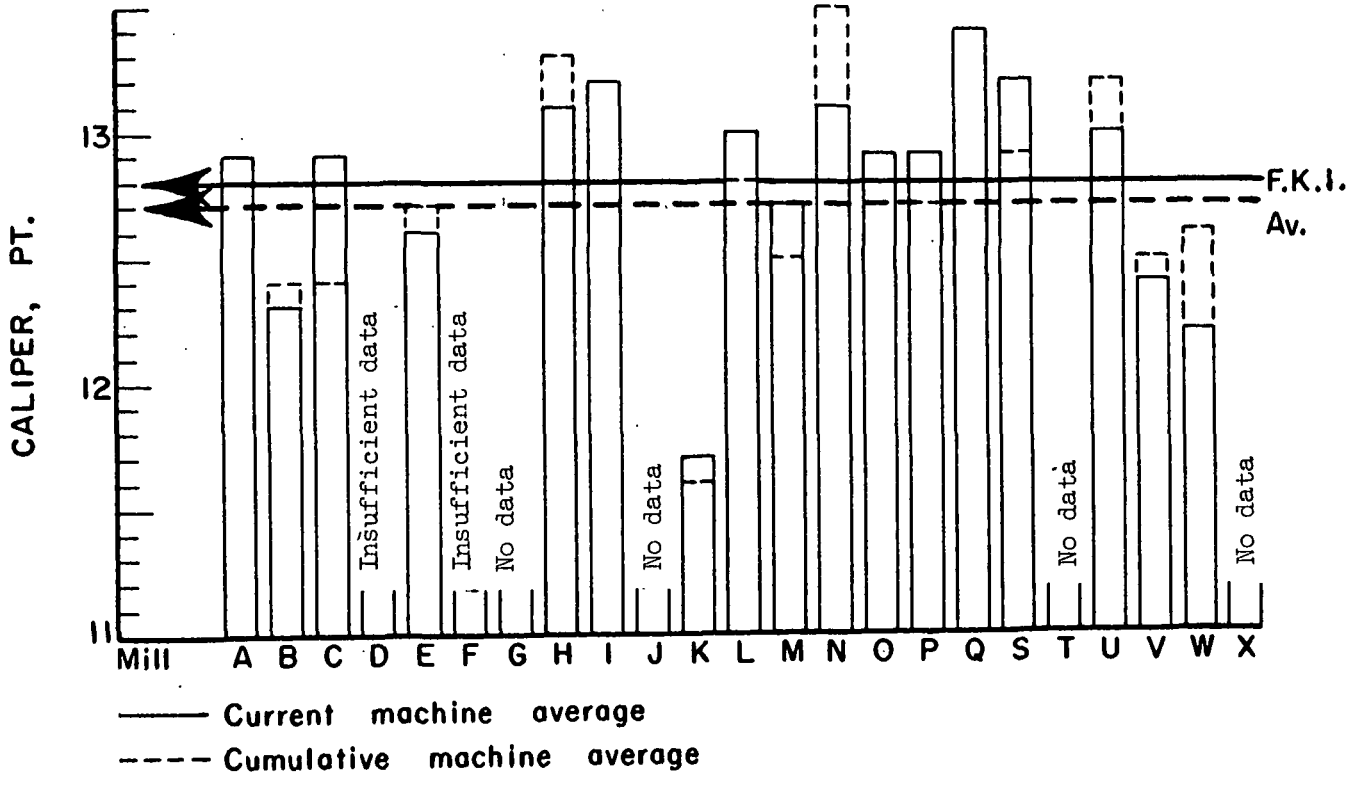

Figure 2. Comparison of Caliper Results

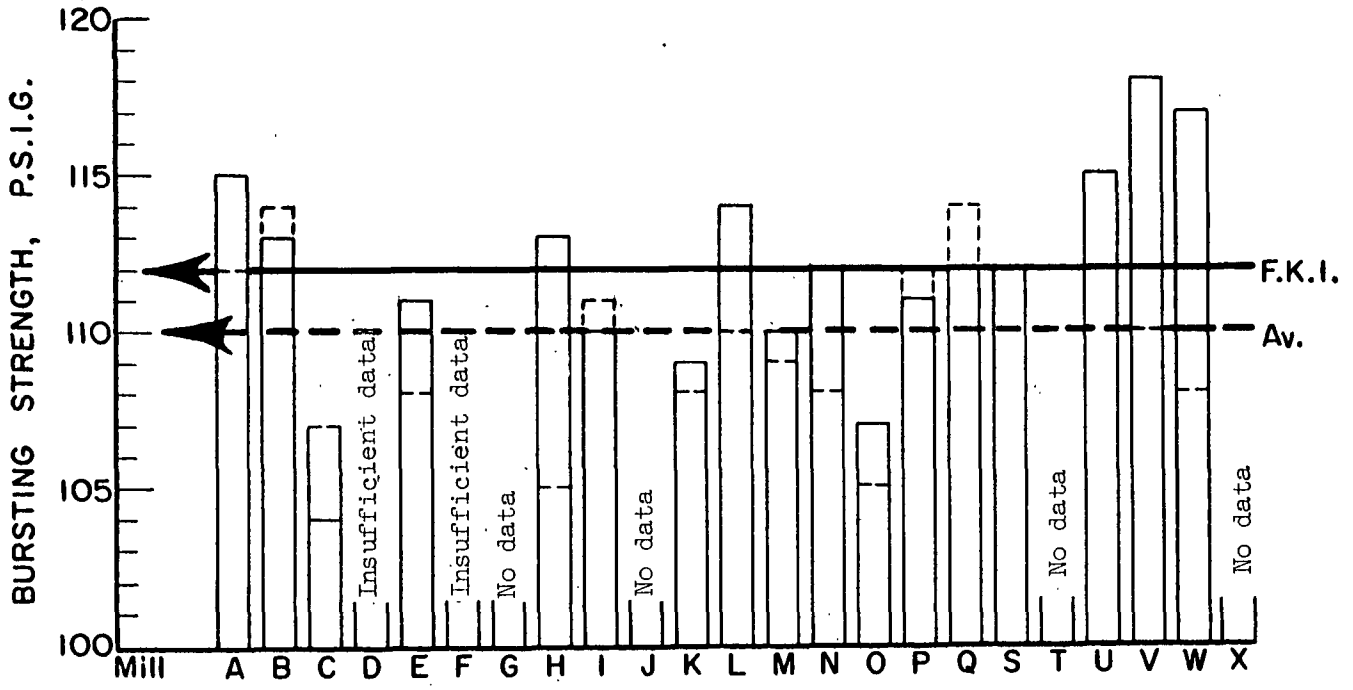

Figure 3. Comparison of Bursting Strength Results

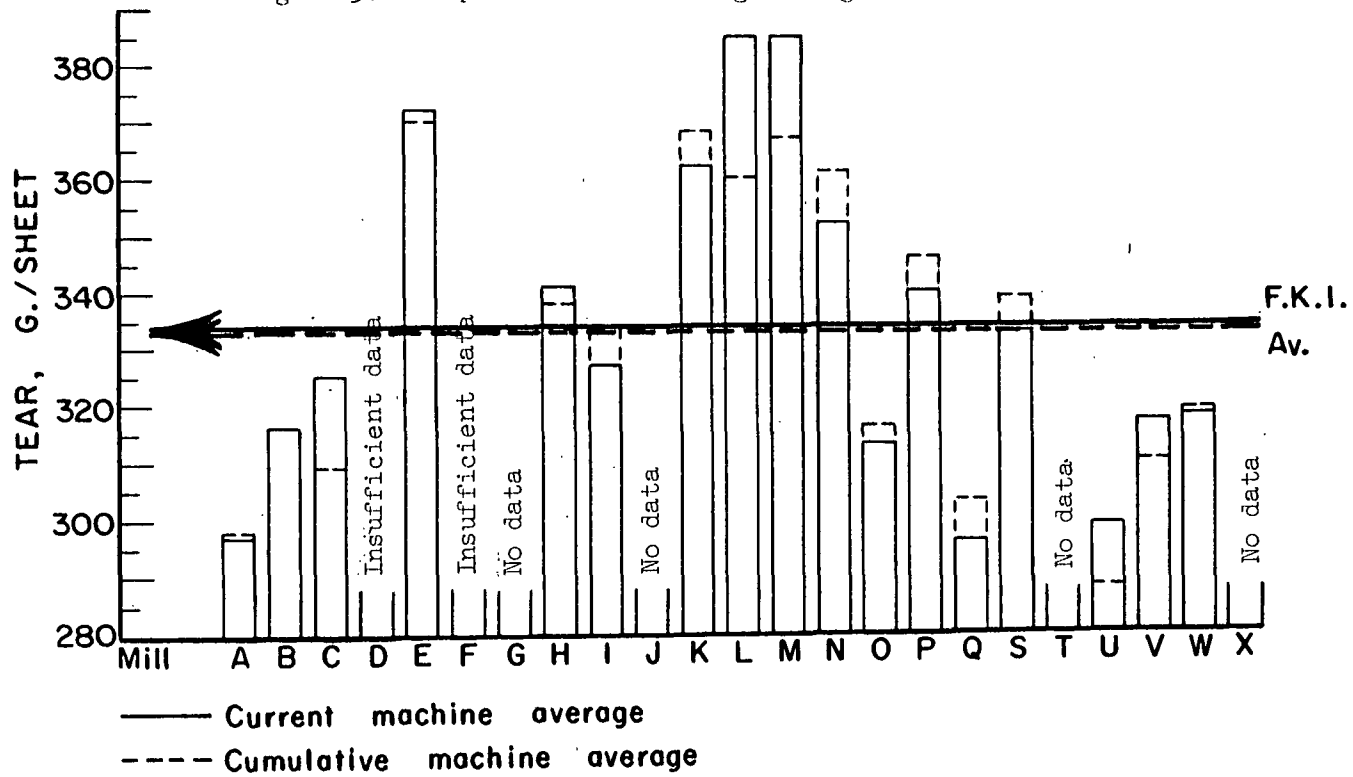

Figure 4. Comparison of Machine-Direction Tear Results

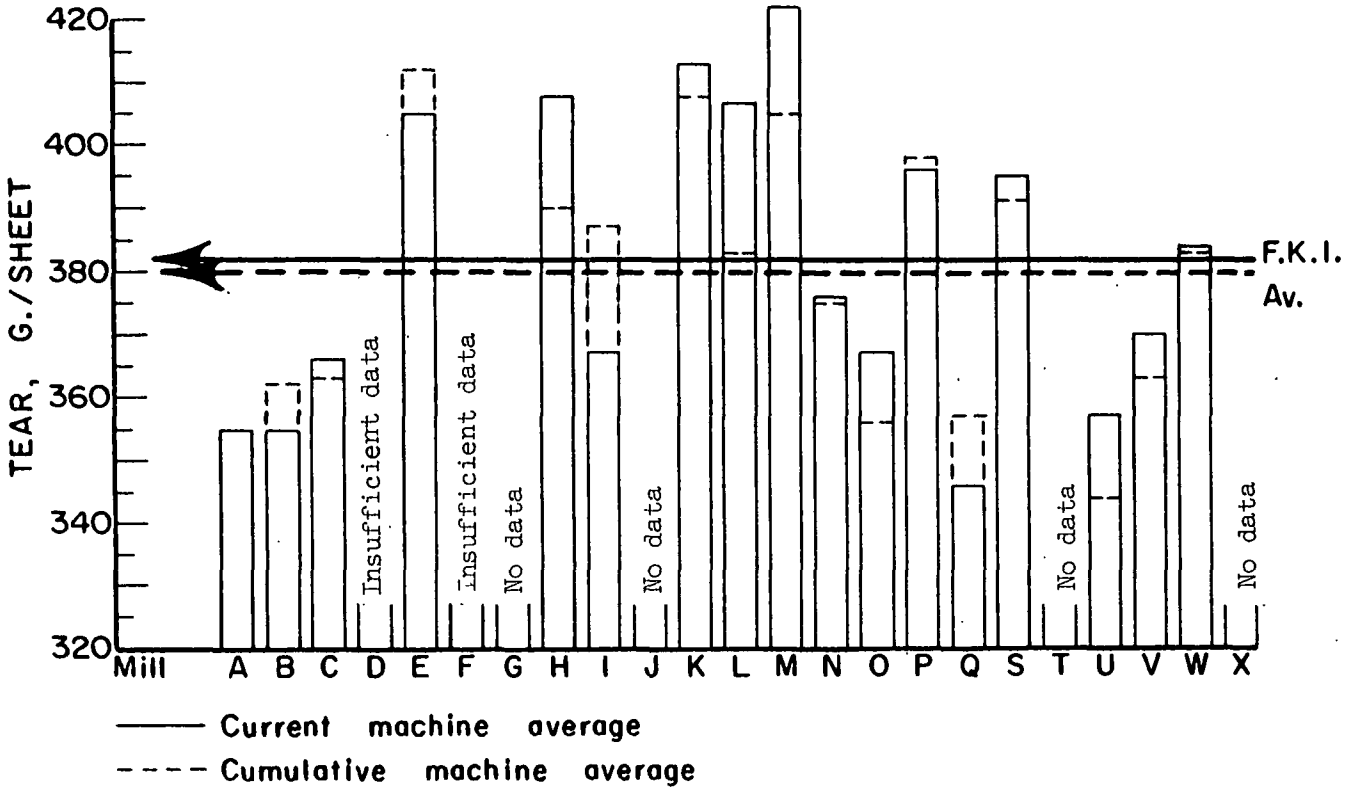

Figure 5. Comparison of Cross-Machine Direction Tear Results

TABLE II

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL
DURING DECEMBER, 1963 AND JANUARY, 1964

Mill Code	Number of Sample Lots
A	8
B	8
C	3
D	2
E	3
F	2
G	0
H	10
I	7
J	0
K	5
L	4
M	6
N	3
O	6
P	5
Q	8
S	8
T	0
U	5
V	4
W	8
X	0
Total	105

TABLE III

PERCENTAGE DEVIATION OF CURRENT MILL AVERAGES
FROM 42-LB. BASIS WEIGHT SPECIFICATION

Mill Code	Percentage Deviation
A	+1.4
B	+2.1
C	+1.9
D	--
E	+0.7
F	+3.1
G	--
H	+2.6
I	+1.9
J	--
K	+1.9
L	+3.8
M	+2.9
N	+0.5
O	+1.7
P	+4.5
Q	+1.9
S	+3.6
T	--
U	+3.3
V	+3.8
W	+1.7
X	--

Test	Current Mill Averages Max.	Min.	F.K.I. Averages Current	Cumulative
Basis weight, lb.	43.9	42.2	43.0	42.9
Caliper, points	13.4	11.7	12.8	12.7
Bursting strength, p.s.i. gage	118	104	112	110
Machine direction Elmendorf tear, g./sheet	385	296	334	333
Cross-machine direction Elmendorf tear, g./sheet	422	346	382	380

The test results obtained at the Institute and at the mill during December and January are given alphabetically in Tables IV to XXVI for each mill. Included in each of these tables are the maximum, minimum, and average test data obtained at the Institute on each sample lot of linerboard. The data obtained at the Institute include also for each test the calculation of (1) a current mill average that represents the mean of the averages obtained on the individual sample lots of linerboard evaluated during the current period, (2) a cumulative mill average that represents the mean of the current mill averages for the previous twelve months excluding the current period, (3) a mill factor expressed in per cent that represents the ratio of the current mill average to the cumulative mill average, and (4) a mill index expressed in per cent that represents the ratio of the current mill average to the cumulative F.K.I. average. The term "mean" in the preceding discussion is synonymous with the simple arithmetic average. As mentioned above, the results presented in Tables IV to XXVI also include data obtained at the mills. The mill data include for each test (1) the average result obtained on each sample lot of linerboard and (2) a current mill average (calculated at the Institute) that represents the mean of the averages obtained on the individual sample lots of linerboard. In addition to the presentations of

TABLE IV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL A

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i.g.					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
11- 8-63	W.F.	1	43.2	42.4	42.8	42.9	+0.1	13.0	12.5	12.8	13.1	+0.3	130	90	107	113	+6	304	248	277	264	-13	360	304	329[a]	353	+24
11-15-63	W.F.	1	43.0	42.0	42.4	42.2	-0.2	13.2	13.0	13.1	13.2	+0.1	132	80	110	108	-2	320	264	288	272	-16	368	312	340[a]	344	+ 4
11-22-63	W.F.	1	43.6	42.2	42.9	42.5	-0.4	13.2	12.9	13.0	13.0	0.0	137	100	120	122	+2	344	264	311	295	-16	416	336	376[a]	357	-19
11-30-63	W.F.	1	42.0	41.8	41.9	42.4	+0.5	12.9	12.2	12.6	13.1	+0.5	140	90	115	114	-1	320	264	282	265	-17	384	320	346[a]	355	+ 9
12- 6-63	W.F.	1	42.2	41.8	42.0	42.8	+0.8	13.3	12.3	12.9	13.1	+0.2	140	90	115	113	-2	336	272	309	254	-55	400	320	362[a]	342	-20
12-14-63	W.F.	1	43.4	42.2	42.7	42.2	-0.5	13.3	12.9	13.0	13.0	0.0	125	80	108	114	+6	352	264	317	262	-55	392	320	371[a]	352	-19
12-21-63	W.F.	1	43.4	42.2	42.8	42.8	0.0	12.9	12.3	12.6	12.9	+0.3	148	100	122	114	-8	304	256	280	244	-36	376	304	341[a]	331	-10
1- 9-64	W.F.	1	43.6	42.6	43.0	42.7	-0.3	13.2	12.8	13.0	13.1	+0.1	145	95	120	117	-3	352	288	312	266	-46	408	352	372[a]	368	- 4
Current mill average:					42.6	42.6	0.0			12.9	13.1	+0.2			115	114	-1			297	265	-32			355	350	- 5
Cumulative mill average:					42.6					12.9					112					298					355		
Mill factor, %					100.0					100.0					102.7					99.7					100.0		
Mill index, %					99.3					101.6					104.5					89.2					93.4		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE V

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL B

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i.g.					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
11-28-63	W.F.	-	44.0	43.2	43.6	43.1	-0.5	12.9	12.1	12.6	12.2	-0.4	132	93	116	115	-1	368	288	326	291	-35	432	320	379[a]	347	-32
11-29-63	W.F.	-	42.2	41.8	42.0	42.1	+0.1	12.4	12.0	12.1	12.0	-0.1	129	78	107	100	-7	384	304	347	311	-36	384	320	343[a]	332	-11
12- 6-63	W.F.	-	43.8	42.4	43.2	42.9	-0.3	12.3	12.0	12.0	12.0	0.0	130	97	114	110	-4	368	264	309	289	-20	368	320	338[a]	337	- 1
12-13-63	W.F.	-	43.6	42.0	42.4	42.2	-0.2	12.2	11.9	12.0	12.0	0.0	140	87	110	108	-2	320	232	287	300	+13	376	320	340[a]	349	+ 9
1- 2-64	W.F.	-	43.8	42.0	42.9	42.5	-0.4	12.1	11.6	11.9	11.9	0.0	128	97	116	112	-4	328	272	301	299	- 2	384	320	351[a]	348	- 3
1- 3-64	W.F.	-	42.4	42.0	42.2	42.6	+0.4	12.8	12.0	12.2	12.0	-0.2	128	97	112	114	+2	376	272	305	296	- 9	376	320	345[a]	352	+ 7
1-10-64	W.F.	-	45.8	44.0	45.0	44.8	-0.2	13.8	12.7	13.2	12.8	-0.4	142	100	116	116	0	368	296	333	341	- 8	440	320	368[a]	372	+ 4
1-17-64	W.F.	-	42.8	40.5	41.6	41.7	+0.1	12.9	12.3	12.6	12.1	-0.5	130	93	114	112	-2	352	272	322	277	-45	408	344	379[a]	332	-47
Current mill average:					42.9	42.7	-0.2			12.3	12.1	-0.2			113	111	-2			316	300	-16			355	346	- 9
Cumulative mill average:					43.0					12.4					114					316					362		
Mill factor, %					99.8					99.2					99.1					100.0					98.1		
Mill index, %					100.0					96.9					102.7					94.9					93.4		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE VI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL C

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb. Institute Max.	Min.	Av.	Mill Av.	Diff.	Caliper, points Institute Max.	Min.	Av.	Mill Av.	Diff.	Bursting Strength, p.s.i.g. Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet In Machine Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet Cross Machine Institute Max.	Min.	Av.	Mill Av.	Diff.
12- 7-63	W.F.	1	44.0	42.6	43.3	43.3	0.0	13.4	12.6	13.0	12.8	-0.2	128	78	106	111	+5	408	240	327	324	- 3	464	328	373[a]	407	+34
12-10-63	W.F.	1	42.8	41.8	42.3	42.3	0.0	13.0	12.1	12.6	12.3	-0.3	122	80	104	108	+4	384	288	333	309	-24	432	352	372[a]	376	+ 4
12-19-63	W.F.	1	44.0	42.0	42.8	43.2	+0.4	13.5	12.8	13.0	12.8	-0.2	120	85	101	106	+5	384	272	314	279	-35	376	320	355[a]	351	- 4
Current mill average:					42.8	43.0	+0.2			12.9	12.6	-0.3			104	108	+4			325	304	-21			366	378	+12
Cumulative mill average:					42.4					12.4					107					309					363		
Mill factor, %					100.9					104.0					97.2					105.2					100.6		
Mill index, %					99.8					101.6					94.5					97.6					96.3		

TABLE VII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL D

12-15-63	----	1	42.8	42.0	42.2	42.3	+0.1	12.9	11.8	12.2	12.1	-0.1	148	92	122	103	-19	400	312	356	330	-26	440	368	403[a]	362	-41
12-21-63	----	1	42.0	40.2	41.5	41.8	+0.3	12.7	12.0	12.3	12.0	-0.3	136	78	112	103	- 9	368	288	325	335	+10	424	320	380[a]	373	- 7
Current mill average:					41.9	42.1	+0.2			12.3	12.0	-0.3			117	103	-14			341	333	- 8			392	368	-24
Cumulative mill average:					42.1					12.6					110					357					397		
Mill factor, %					99.5					97.6					106.4					95.5					98.7		
Mill index, %					97.7					96.9					106.4					102.4					103.2		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE VIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL E

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb. Institute Max.	Institute Min.	Institute Av.	Mill Av.	Diff.	Caliper, points Institute Max.	Institute Min.	Institute Av.	Mill Av.	Diff.	Bursting Strength, p.s.i.g. Institute Max.	Institute Min.	Institute Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet In Machine Institute Max.	Institute Min.	Institute Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet Cross Machine Institute Max.	Institute Min.	Institute Av.	Mill Av.	Diff.
11-29-63	W.B.	-	43.8	42.0	42.3	42.1	-0.2	13.1	12.0	12.7	12.3	-0.4	132	92	111	109	-2	448	336	389[a]	381	- 8	460	368	411[a]	397	-14
11-24-63	W.B.	-	43.6	41.8	42.4	42.2	-0.2	13.2	12.3	12.8	12.6	-0.2	131	87	107	108	+1	440	288	369	396	+27	480	384	409[a]	423	+14
12- 4-63	W.B.	-	43.2	40.6	42.2	42.3	+0.1	13.0	12.0	12.3	12.1	-0.2	140	92	116	110	-6	400	304	358	392	-34	464	320	395[a]	411	+16
Current mill average:					42.3	42.2	-0.1			12.6	12.3	-0.3			111	109	-2			372	390	+18			405	410	+ 5
Cumulative mill average:					43.1					12.7					108					370					412		
Mill factor, %					98.1					99.2					102.8					100.5					98.3		
Mill index, %					98.6					99.2					100.9					111.7					106.6		

TABLE IX

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL F

11-22-63	WFlS	1	44.0	43.0	43.5	41.7	-1.8	13.0	12.1	12.5	12.1	-0.4	140	93	112	119	+7	384	304	334[a]	307	-27	416	352	365[a]	383	+18
1-14-64	W.F.	2	43.8	42.0	43.0	42.6	-0.4	12.9	12.0	12.2	11.7	-0.5	139	93	115	117	+2	400	336	366	282	-84	432	368	393[a]	345	-48
Current mill average:					43.3	42.2	-1.1			12.4	11.9	-0.5			114	118	+4			350	294	-56			379	364	-15
Cumulative mill average:					43.2					11.9					114					325					365		
Mill factor, %					100.2					104.2					100.0					107.7					103.8		
Mill index, %					100.9					97.6					103.6					105.1					99.7		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE X

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL G

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb. Institute Max.	Min.	Av.	Mill Av.	Diff.	Caliper, points Institute Max.	Min.	Av.	Mill Av.	Diff.	Bursting Strength, p.s.i.g. Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet In Machine Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet Cross Machine Institute Max.	Min.	Av.	Mill Av.	Diff.
No samples submitted.																											

TABLE XI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL H

10-20-63	WFlS	2	50.0	42.0	45.6[b]	43.3	-2.3	15.5	12.8	13.8	13.1	-0.7	135	99	114	107	-7	424	320	374	342	-32	512	384	441[a]	424	-17
11-12-63	----	2	42.8	41.8	42.0	42.1	+0.1	13.1	12.0	12.5	12.3	-0.2	142	93	118	114	-4	384	256	329	322	- 7	416	352	383[a]	430	+47
11-14-63	WFlS	2	43.8	42.2	43.0	43.8	-0.2	13.2	12.5	12.8	12.8	0.0	133	97	115	113	-2	392	288	333	331	- 2	440	352	395[a]	413	+18
11-15-63	----	2	43.8	41.8	42.5	42.2	-0.3	13.0	12.1	12.7	12.4	-0.3	135	78	118	118	0	392	280	341	340	- 1	448	368	405[a]	402	- 3
11-19-63	WFlS	2	43.8	42.4	43.3	43.0	-0.3	14.1	12.9	13.6	13.3	-0.3	131	90	114	110	-4	352	288	324	315	- 9	464	352	406[a]	414	+ 8
12- 1-63	WFlS	2	43.8	42.0	42.8	42.3	-0.5	13.0	12.1	12.7	12.5	-0.2	131	97	115	113	-2	368	280	323	329	+ 6	432	368	399[a]	405	+ 6
12- 2-63	WFlS	2	43.4	42.2	42.6	42.3	-0.3	13.1	12.1	12.6	12.5	-0.1	141	95	114	112	-2	360	272	319	332	+13	416	360	385[a]	398	+13
12-11-63	WFlS	2	43.8	42.6	43.3	42.6	-0.7	14.0	12.6	13.5	12.9	-0.6	124	92	107	104	-3	432	288	359[a]	390	+31	496	384	417[a]	418	+ 1
12-15-63	W.F.	2	43.8	41.8	42.5	42.6	+0.1	13.8	13.0	13.3	13.1	-0.2	130	85	106	112	+6	400	312	353	355	+ 2	464	384	433[a]	429	- 4
12-15-63	W.F.	2	44.0	42.8	43.8	43.0	-0.8	13.9	13.1	13.5	13.2	-0.3	125	98	111	112	+1	392	304	357	368	+11	432	384	413[a]	426	+13
Current mill average:					43.1	42.6	-0.5			13.1	12.8	-0.3			113	111	-2			341	342	+ 1			408	416	+ 8
Cumulative mill average:					42.8					13.3					105					338					390		
Mill factor, %					100.7					98.5					107.6					100.9					104.6		
Mill index, %					100.5					103.1					102.7					102.4					107.4		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
[b]The sheets in this sample varied in basis weigat from 42.0 to 50.0 pounds per 1000 square feet.

Note: All "current mill average" data are calculated from the totals of the individual reading.

TABLE XII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL I

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i.g.					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
11-10-63	WF1S	1	43.0	42.0	42.3	42.2	-0.1	14.2	13.8	14.0	13.5	-0.5	127	95	115	108	- 7	360	280	319[a]	336	+17	416	336	373[a]	366	- 7
11-20-63	WF1S	1	43.4	42.0	42.6	42.4	-0.2	14.2	13.8	14.0	13.5	-0.5	129	88	108	107	- 1	360	288	320	345	+25	392	320	361[a]	363	+ 2
11-25-63	WF1S	1	43.2	42.0	42.7	42.4	-0.3	12.2	12.0	12.0	13.3	+1.3	122	74	106	106	0	368	272	311	312	+ 1	384	336	359[a]	357	- 2
12- 2-63	WF1S	1	42.4	41.2	41.9	42.2	+0.3	13.5	12.2	12.9	12.7	-0.2	129	103	117	117	0	392	280	331	304	-27	440	336	380[a]	365	-15
12-11-63	WF1S	1	43.6	41.4	42.1	42.0	-0.1	13.9	12.4	13.0	12.7	-0.3	145	95	113	113	0	360	256	313	326	+13	448	352	379[a]	405	+26
12-23-63	WF1S	1	44.6	43.4	44.0	43.1	-0.9	13.5	12.7	13.1	12.3	-0.8	121	86	103	114	+11	400	288	343[a]	339	- 4	400	304	354[a]	364	+10
1- 5-64	WF1S	1	44.0	43.2	43.8	43.5	-0.3	13.7	12.3	13.1	12.7	-0.4	127	98	110	112	+ 2	432	304	352	327	-25	440	320	361[a]	366	+ 5
Current mill average:					42.8	42.5	-0.3			13.2	13.0	-0.2			110	111	+ 1			327	327	0			367	369	+ 2
Cumulative mill average:					42.8					13.2					111					334					387		
Mill factor, %					100.0					100.0					99.1					97.9					94.8		
Mill index, %					99.8					103.9					100.0					98.2					96.6		

TABLE XIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL J

No samples submitted.

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL K

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb. Institute Max.	Min.	Av.	Mill Av.	Diff.	Caliper, points Institute Max.	Min.	Av.	Mill Av.	Diff.	Bursting Strength, p.s.i.g. Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet In Machine Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet Cross Machine Institute Max.	Min.	Av.	Mill Av.	Diff.
11-30-63	W.B.	-	44.2	42.0	43.0	42.4	-0.6	12.7	11.3	11.9	11.5	-0.4	134	96	112	110	-2	400	320	358	320	-38	440	384	413[a]	384	-29
12- 1-63[b]	W.B.	-	43.6	41.8	42.7	42.5	-0.2	12.1	11.3	11.8	11.4	-0.4	126	89	109	107	-2	400	320	351	352	+ 1	464	352	403[a]	420	+17
12- 3-63[c]	W.B.	-	44.0	42.0	43.3	42.4	-0.9	12.1	11.3	11.9	11.4	-0.5	125	85	107	107	0	432	336	376	335	-41	448	376	411[a]	397	-14
12-14-63	W.B.	-	43.8	41.4	42.4	42.2	-0.2	12.0	11.0	11.4	11.1	-0.3	123	96	110	106	-4	400	328	360[a]	327	-33	464	400	431[a]	400	-31
1-12-64	W.B.	-	43.2	41.4	42.4	42.0	-0.4	12.1	11.0	11.7	11.2	-0.5	125	86	107	108	+1	384	336	365	320	-45	456	368	407[a]	389	-18
Current mill average:					42.8	42.3	-0.5			11.7	11.3	-0.4			109	108	-1			362	331	-31			413	398	-15
Cumulative mill average:					43.0					11.6					108					368					408		
Mill factor, %					99.5					100.9					100.9					98.4					101.2		
Mill index, %					99.8					92.1					99.1					108.7					108.7		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

[b]This date appeared on the sample received by the Institute. The mill data sheet gives the date of manufacture as December 3, 1963.

[c]This date appeared on the sample received by the Institute. The mill data sheet gives the date of manufacture as December 1, 1963.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL L

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i.g.					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
12- 7-63	W.F.	-	45.6	42.4	44.1	44.4	+0.3	13.8	12.8	13.1	13.4	+0.3	128	90	110	108	-2	464	336	402	371	-31	480	352	401[a]	387	-14
12- 7-63	W.F.	-	44.8	42.0	43.7	43.8	+0.1	13.9	13.0	13.3	13.3	0.0	134	94	111	111	0	416	320	378	357	-21	464	368	409[a]	385	-24
1- 9-64	W.F.	-	44.0	42.0	43.4	43.6	+0.2	13.4	11.7	12.6	12.8	+0.2	139	92	119	112	-7	400	352	370[a]	331	-39	464	368	409[a]	367	-42
1- 9-64	W.F.	-	43.8	42.0	43.2	43.6	+0.4	13.4	12.3	12.9	12.8	-0.1	141	93	117	112	-5	440	352	389	339	-50	464	376	409[a]	386	-23
Current mill average:					43.6	43.8	+0.2			13.0	13.1	+0.1			114	111	-3			385	350	-35			407	381	-26
Cumulative mill average:					43.0					12.8					110					360					383		
Mill factor, %					101.4					101.6					103.6					106.9					106.3		
Mill index, %					101.6					102.4					103.6					115.6					107.1		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XVI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL M

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i.g.					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
12- 2-63	----	2	44.4	42.0	42.9	42.6	-0.3	12.9	12.0	12.5	12.5	0.0	142	87	116	107	-9	416	320	357	---	---	472	368	407[a]	---	---
12- 4-63	----	2	44.2	43.8	44.0	43.6	-0.4	13.1	12.4	12.9	12.7	-0.2	134	90	113	106	-7	464	304	373[a]	---	---	496	408	449[a]	---	---
12- 6-63	----	1	44.8	43.2	44.1	43.5	-0.6	13.3	13.0	13.1	12.8	-0.3	130	76	105	99	-6	512	320	395	---	---	464	352	394[a]	---	---
1- 8-64	----	2	44.2	42.2	43.5	43.2	-0.3	12.6	11.3	12.0	11.9	-0.1	139	98	118	111	-7	480	352	429[a]	---	---	504	400	435[a]	---	---
1- 9-64	----	2	44.0	42.0	42.4	41.6	-0.8	12.0	11.0	11.6	11.5	-0.1	136	92	117	116	-1	400	304	361	---	---	480	384	439[a]	---	---
1-15-64	----	1	43.8	42.0	42.6	42.2	-0.4	14.5	13.7	14.0	13.9	-0.1	123	56	91	90	-1	480	304	395[a]	---	---	448	352	409[a]	---	---
Current mill average:					43.2	42.8	-0.4			12.7	12.5	-0.2			110	105	-5			385					422		
Cumulative mill average:					43.3					12.5					109					367					405		
Mill factor, %					99.6					101.6					100.9					104.9					104.2		
Mill index, %					100.7					100.0					100.0					115.6					111.1		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XVII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL N

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb. Institute Max.	Min.	Av.	Mill Av.	Diff.	Caliper, points Institute Max.	Min.	Av.	Mill Av.	Diff.	Bursting Strength, p.s.i.g. Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet In Machine Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet Cross Machine Institute Max.	Min.	Av.	Mill Av.	Diff.
1- 2-64	----	-	43.8	41.4	42.3	41.8	-0.5	13.5	12.6	13.1	12.6	-0.5	129	98	112	112	0	384	288	339	---	---	440	336	369[a]	---	---
1-15-64	----	-	42.8	41.4	42.0	41.9	-0.1	13.6	12.9	13.2	12.8	-0.4	128	83	110	109	-1	392	272	342	---	---	448	312	372[a]	---	---
1-20-64	----	-	43.2	41.4	42.2	42.1	-0.1	13.5	12.2	13.0	12.8	-0.2	148	97	115	109	-6	432	312	375[a]	---	---	448	320	387[a]	---	---
Current mill average:					42.2	41.9	-0.3			13.1	12.7	-0.4			112	110	-2			352					376		
Cumulative mill average:					42.0					13.5					108					361					375		
Mill factor, %					100.5					97.0					103.7					97.5					100.3		
Mill index, %					96.4					103.1					101.8					105.7					98.9		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XVIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL O

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i.g.					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
11- 6-63	----	1	42.6	41.4	42.0	42.4	+0.4	13.7	12.7	13.1	12.8	-0.3	120	74	96	104	+8	320	272	292	281	-11	368	336	351[a]	345	- 6
11-14-63	----	1	44.4	43.6	44.0	44.4	+0.4	13.1	12.7	12.9	12.6	-0.3	127	93	110	114	+4	384	272	326	309	-17	416	320	366[a]	368	+ 2
12- 9-63	----	1	44.2	42.0	42.6	+3.4	+0.8	13.4	12.0	12.7	12.4	-0.3	129	83	107	100	-7	416	248	318	300	-18	440	328	381[a]	376	- 5
12-10-63	----	1	44.0	41.7	42.7	42.5	-0.2	13.2	12.1	12.7	12.7	0.0	124	88	105	103	-2	336	280	305[a]	277	-28	432	336	367[a]	350	-17
12-16-63	----	1	43.2	41.2	42.2	+2.0	-0.2	13.4	12.0	12.5	12.4	-0.1	131	85	114	114	0	384	264	322	277	-45	464	344	374[a]	364	-10
1-13-64	----	1	44.0	42.2	43.1	+3.4	+0.3	13.9	12.9	13.2	12.9	-0.3	127	90	107	110	+3	360	240	315	285	-30	432	288	367[a]	356	-11
Current mill average:					42.7	+3.0	+0.3			12.9	12.6	-0.3			107	108	+1			313	288	-25			367	360	- 7
Cumulative mill average:					42.8					12.9					105					316					356		
Mill factor, %					99.8					100.0					101.9					99.1					103.1		
Mill index, %					99.5					101.6					97.3					94.0					96.6		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIX

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL P

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i.g.					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
10- 8-63	W.F.	3	44.2	43.6	43.9	44.2	+0.3	13.3	12.1	12.7	12.4	-0.3	129	96	114	113	-1	360	288	330	328	- 2	432	320	385[a]	388	+ 3
10- 9-63	W.F.	3	44.2	43.8	44.0	44.2	+0.2	13.2	12.4	12.9	12.5	-0.4	126	95	112	112	0	384	304	334	347	+13	432	336	379[a]	402	+23
12-11-63	W.F.	3	43.8	42.2	43.3	43.8	+0.5	13.2	12.1	12.8	12.5	-0.3	126	81	106	108	+2	400	304	352	336	-16	464	368	414[a]	426	+12
12-12-63	W.F.	3	44.6	44.0	44.2	44.7	+0.5	13.5	12.7	13.0	12.9	-0.1	132	83	113	110	-3	432	320	363	365	+ 2	448	352	402[a]	404	+ 2
12-22-63	W.F.	3	44.2	43.6	44.0	44.0	0.0	13.6	12.5	13.0	12.8	-0.2	129	97	109	109	0	448	264	323	319	- 4	448	360	398[a]	391	- 7
Current mill average:					43.9	44.2	+0.3			12.9	12.6	-0.3			111	110	-1			340	339	- 1			396	402	+6
Cumulative mill average:					43.5					12.7					112					346					398		
Mill factor, %					100.9					101.6					99.1					98.3					99.5		
Mill index, %					102.3					101.6					100.9					102.1					104.2		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL U

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb. Institute Max.	Min.	Av.	Mill Av.	Diff.	Caliper, points Institute Max.	Min.	Av.	Mill Av.	Diff.	Bursting Strength, p.s.i.g. Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet In Machine Institute Max.	Min.	Av.	Mill Av.	Diff.	Elmendorf Tear, g./sheet Cross Machine Institute Max.	Min.	Av.	Mill Av.	Diff.
10-31-63	WFlS	1	44.2	43.6	43.9	42.9	-1.0	13.8	13.0	13.3	12.8	-0.5	121	95	109	112	+3	336	256	286	294	+ 8	400	336	367[a]	360	- 7
12- 2-63	WFlS	1	44.0	42.8	43.6	42.6	-1.0	13.2	12.8	13.0	12.7	-0.3	137	95	112	107	-5	368	272	311	291	-20	384	336	362[a]	351	-11
12-12-63[b]	WFlS	1	44.0	43.4	43.8	42.6	-1.2	13.3	12.4	13.0	12.9	-0.1	135	98	116	113	-3	384	240	292[a]	280	-12	384	336	357[a]	369	+12
12-15-63	WFlS	1	43.8	42.0	42.8	41.9	-0.9	13.1	12.2	12.9	12.3	-0.6	140	98	121	116	-5	328	256	292	276	-16	368	320	347[a]	364	+17
12-15-63	WFlS	1	43.8	42.0	42.7	41.9	-0.8	13.0	12.2	12.6	12.1	-0.5	140	105	118	112	-6	352	288	311	264	-47	384	304	352[a]	319	-33
Current mill average:					43.4	42.4	-1.0			13.0	12.5	-0.5			115	112	-3			299	281	-18			357	353	- 4
Cumulative mill average:					42.7					13.2					115					288					344		
Mill factor, %					101.6					98.5					100.0					103.8					103.8		
Mill index, %					101.2					102.4					104.5					89.8					93.9		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

[b]This date appeared on the sample received by the Institute. The mill data sheet gives the date of manufacture as December 2, 1963.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXIV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL V

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i.g.					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
11- 4-63	W.F.	1	44.0	43.6	43.8	43.3	-0.5	12.7	12.0	12.4	12.1	-0.3	138	100	119	116	-3	352	256	311	327	+16	384	336	367[a]	357	-10
11-11-63	W.F.	1	44.6	42.6	43.5	43.4	-0.1	13.1	12.0	12.4	12.0	-0.4	140	98	119	119	0	352	240	308	311	+ 3	416	336	371[a]	354	-17
11-22-63	W.F.	1	44.6	42.0	43.6	43.2	-0.4	13.0	11.7	12.3	12.1	-0.2	143	92	118	118	0	400	256	328	301	-27	416	352	379[a]	369	-10
12-11-63	W.F.	1	44.2	42.0	43.4	43.4	0.0	13.1	12.1	12.5	12.1	-0.4	136	96	116	118	+2	352	248	319	305	-14	392	336	365[a]	378	+13
Current mill average:					43.6	43.3	-0.3			12.4	12.1	-0.3			118	118	0			317	311	- 6			370	364	- 6
Cumulative mill average:					43.3					12.5					110					310					363		
Mill factor, %					100.7					99.2					107.3					102.3					101.9		
Mill index, %					101.6					97.6					107.3					95.2					97.4		

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL W

December, 1963 and January, 1964

Date Made	Finish	Mch. No.	Basis Weight, lb.					Caliper, points					Bursting Strength, p.s.i.g.					Elmendorf Tear, g./sheet In Machine					Elmendorf Tear, g./sheet Cross Machine				
			Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill		Institute			Mill	
			Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.	Max.	Min.	Av.	Av.	Diff.
11-19-63	WFlS	1	43.6	42.0	42.7	42.3	-0.4	12.7	12.0	12.2	12.0	-0.2	130	104	117	113	- 4	368	248	325	331	+ 6	440	344	385[a]	401	+16
11-26-63	WFlS	1	43.6	42.4	43.2	42.4	-0.8	12.4	11.6	12.1	12.2	+0.1	140	100	118	107	-11	392	304	333	334	+ 1	432	344	391[a]	411	+20
12- 3-63	WFlS	1	43.6	42.4	43.0	42.6	-0.4	12.9	11.4	12.3	12.1	-0.2	130	100	115	113	- 2	384	272	333	303	-30	464	368	395[a]	390	- 5
12-10-63	WFlS	1	43.4	42.0	42.4	42.4	0.0	12.8	11.7	12.2	12.0	-0.2	139	104	121	114	- 7	368	248	321	341	+20	432	352	386[a]	432	+46
12-17-63	WFlS	1	43.4	42.0	42.5	42.3	-0.2	12.9	12.0	12.2	12.1	-0.1	136	108	122	106	-16	400	256	327	288	-39	456	368	405[a]	383	-22
12-31-63	WFlS	1	44.0	42.2	43.1	42.4	-0.7	13.0	12.1	12.4	12.3	-0.1	130	95	112	107	- 5	328	256	292	300	+ 8	392	336	367[a]	385	+18
1- 7-64	WFlS	1	43.0	42.0	42.2	42.5	+0.3	12.5	11.7	12.1	12.0	-0.1	134	100	114	113	- 1	352	272	301	336	+35	400	344	371[a]	411	+40
1-14-64	WFlS	1	43.0	42.0	42.5	42.8	+0.3	12.8	11.5	12.2	12.0	-0.2	132	99	116	108	- 8	352	264	313	301	-12	432	304	373[a]	362	-11
Current mill average:					42.7	42.4	-0.3			12.2	12.1	-0.1			117	110	- 7			318	317	- 1			384	397	+13
Cumulative mill average:					43.0					12.6					108					319					383		
Mill factor, %					99.3					96.8					108.3					99.7					100.3		
Mill index, %					99.5					96.1					106.4					95.5					101.1		

TABLE XXVI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL X

No samples submitted.

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

Institute and mill data described above, Tables IV through XXVI also include under each test heading a column labeled "Diff." This column shows the differences between averages obtained at the Institute and those obtained at the mills. The data obtained at the Institute are used as the reference in calculating these differences.

The average test results obtained at the Institute and at the mills are summarized in Table XXVII for the current period. Shown in this table for each mill is the difference for each test between the current mill average based on Institute data and the current mill average based on mill data. In addition, for each test the maximum difference encountered in comparing Institute and mill averages for individual sample lots is shown. In Table XXVIII, the differences for each test between the current mill averages based on Institute data and those based on mill data shown in Table XXVII have been converted to per cent (based on Institute data as a reference). In addition, for purposes of comparison, the percentage differences from the previous bimonthly report are shown in Table XXVIII.

A summary of the agreement obtained in the comparisons of Institute and mill test data for the current period is shown in Table XXIX. This summary is based on the results given in Table XXVIII. The tabulated data show the number of mills, and the percentage of all mills which this number represents, whose average test results for the current period fall within designated percentages from the average test results obtained at the Institute. It may be noted from this summary that agreement between the results obtained at the Institute and those obtained at the mills was generally very good.

Preconditioning and conditioning data pertinent to the test results obtained at the mills during the current period are given in Table XXX.

TABLE XXVII

SUMMARY OF TEST RESULT COMPARISONS (AVERAGE MILL AND INSTITUTE RESULTS) FOR DECEMBER, 1963 AND JANUARY, 1964

Mills[a]	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T	U	V	W	X
No. of samples compared	8	8	3	2	3	2	0	10	7	0	5	4	6	3	6	5	8	8	0	5	4	8	0
Basis Weight																							
Institute	42.6	42.9	42.8	41.9	42.3	43.3		43.1	42.8		42.8	43.6	43.2	42.2	42.7	43.9	42.8	43.5		43.4	43.6	42.7	
Mill	42.6	42.7	43.0	42.1	42.2	42.2		42.6	42.5		42.3	43.8	42.8	41.9	43.0	44.2	42.9	43.5		42.4	43.3	42.4	
Av. diff.[b]	0.0	-0.2	+0.2	+0.2	-0.1	-1.1		-0.5	-0.3		-0.5	+0.2	-0.4	-0.3	+0.3	+0.3	+0.1	0.0		-1.0	-0.3	-0.3	
Max. diff.[c]	+0.8	-0.5	+0.4	+0.3	-0.2	-1.8		-2.3	-0.9		-0.9	+0.4	-0.8	-0.5	+0.8	+0.5	±0.5	±0.2		-1.2	-0.5	-0.8	
Caliper																							
Institute	12.9	12.3	12.9	12.3	12.6	12.4		13.1	13.2		11.7	13.0	12.7	13.1	12.9	12.9	13.4	13.2		13.0	12.4	12.2	
Mill	13.1	12.1	12.6	12.0	12.3	11.9		12.8	13.0		11.3	13.1	12.5	12.7	12.6	12.6	12.8	13.0		12.5	12.1	12.1	
Av. diff.[b]	+0.2	-0.2	-0.3	-0.3	-0.3	-0.5		-0.3	-0.2		-0.4	+0.1	-0.2	-0.4	-0.3	-0.3	-0.6	-0.2		-0.5	-0.3	-0.1	
Max. diff.[c]	+0.5	-0.5	-0.3	-0.3	-0.4	-0.5		-0.7	±1.3		-0.5	+0.3	-0.3	-0.5	-0.3	-0.4	-0.8	-0.4		-0.6	-0.4	-0.2	
Bursting Strength																							
Institute	115	113	104	117	111	114		113	110		109	114	110	112	107	111	112	112		115	118	117	
Mill	114	111	108	103	109	118		111	111		108	111	105	110	108	110	108	110		112	118	110	
Av. diff.[b]	-1	-2	+4	-14	-2	+4		-2	+1		-1	-3	-5	-2	+1	-1	-4	-2		-3	0	-7	
Max. diff.[c]	-8	-7	+5	-19	-6	+7		-7	+11		-4	-7	-9	-6	+8	-3	-9	-8		-6	-3	-16	
Tearing Strength, in																							
Institute	297	316	325	341	372	350		341	327		362	385	385	352	313	340	296	333		299	317	318	
Mill	265	300	304	333	390	294		342	327		331	350	--	--	288	339	284	325		281	311	317	
Av. diff.[b]	-32	-16	-21	-8	+18	-56		+1	0		-31	-35	--	--	-25	-1	-12	-8		-18	-6	-1	
Max. diff.[c]	-55	-45	-35	-26	+34	-84		-32	-27		-45	-50	--	--	-45	-16	-33	-25		-47	-27	-39	
Tearing Strength, cross																							
Institute	355	355	366	392	405	379		408	367		413	407	422	376	367	396	346	395		357	370	384	
Mill	350	346	378	368	410	364		416	369		398	381	--	--	360	402	380	396		353	364	397	
Av. diff.[b]	-5	-9	+12	-24	+5	-15		+8	+2		-15	-26	--	--	-7	+6	+34	+1		-4	-6	+13	
Max. diff.[c]	+24	-47	+34	-41	+16	-48		+47	+26		-31	-42	--	--	-17	+23	+57	+30		-33	-17	+46	

[a] Comparison based on averages involved only those samples on which mill test data were submitted.

[b] Average difference is the difference between the Institute mill average and the mill average based on mill test data.

[c] Maximum difference encountered in comparing the Institute average and the mill averages for any sample submitted by that particular mill.

TABLE XXVIII

COMPARISON OF INSTITUTE-MILL DIFFERENCES FOR DECEMBER, 1963 AND JANUARY, 1964
(Average Difference, per cent)

Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, cross
A	Aug.-Sept.	+0.9	+2	+3	-10	-0.3
	Oct.-Nov.	-0.2	+2	+3	-11	+0.3
	Current	0	+2	-0.9	-11	-1
B	Aug.-Sept.	0	-3	-0.9	-5	-1
	Oct.-Nov.	-0.2	-2	-0.9	-7	-6
	Current	-0.5	-2	-2	-5	-3
C	Aug.-Sept.	0	-2	+0.9	-10	-3
	Oct.-Nov.	+0.7	-2	-0.9	-8	-1
	Current	+0.5	-2	+4	-6	+3
D	Aug.-Sept.	-1	-2	+10	-10	-8
	Oct.-Nov.	-0.5	-2	+2	-9	-10
	Current	+0.5	-2	-12	-2	-6
E	Aug.-Sept.	-0.9	-2	0	+7	-3
	Oct.-Nov.	-3	-2	-0.9	+9	+4
	Current	-0.2	-2	-2	+5	+1
F	Aug.-Sept.	-0.7	-3	+0.9	-9	-8
	Oct.-Nov.	-0.5	-3	+4	-3	-4
	Current	-3	-4	+4	-16	-4
G	Aug.-Sept.	--	--	--	--	--
	Oct.-Nov.	--	--	--	--	--
	Current	--	--	--	--	--
H	Aug.-Sept.	+0.7	-2	+3	+6	+10
	Oct.-Nov.	0	-2	+5	+4	+6
	Current	-1	-2	-2	+0.3	+2
I	Aug.-Sept.	-2	-3	+0.9	-0.3	-0.8
	Oct.-Nov.	-2	-4	-2	+0.9	-0.5
	Current	-0.7	-2	+0.9	0	+0.5
J	Aug.-Sept.	--	--	--	--	--
	Oct.-Nov.	--	--	--	--	--
	Current	--	--	--	--	--
K	Aug.-Sept.	-0.9	-3	0	-3	+0.7
	Oct.-Nov.	-1	-3	+0.9	-7	-4
	Current	-1	-3	-0.9	-9	-4
L	Aug.-Sept.	+0.9	0	-2	-5	-3
	Oct.-Nov.	-0.5	0	-2	-7	-0.5
	Current	+0.5	+0.8	-3	-9	-6
M	Aug.-Sept.	-2	0	+2	--	--
	Oct.-Nov.	-2	0	-0.9	--	--
	Current	-0.9	-2	-5	--	--
N	Aug.-Sept.	-0.2	-3	+5	--	--
	Oct.-Nov.	-0.7	-3	+3	--	--
	Current	-0.7	-3	-2	--	--
O	Aug.-Sept.	+0.5	-4	+2	-7	-0.9
	Oct.-Nov.	+0.7	-2	+2	0	+2
	Current	+0.7	-2	+0.9	-8	-2
P	Aug.-Sept.	-0.2	-3	+0.9	-0.9	-0.5
	Oct.-Nov.	+0.7	-0.8	-0.9	+0.6	-0.5
	Current	+0.7	-2	-0.9	-0.3	+2
Q	Aug.-Sept.	+2	0	-2	+8	+13
	Oct.-Nov.	+0.5	-6	-8	+7	+7
	Current	+0.2	-4	-4	-4	+10
S	Aug.-Sept.	--	--	--	--	--
	Oct.-Nov.	+0.2	-0.8	-2	-2	-0.8
	Current	0	-2	-2	-2	+0.3
T	Aug.-Sept.	--	--	--	--	--
	Oct.-Nov.	--	--	--	--	--
	Current	--	--	--	--	--
U	Aug.-Sept.	-0.9	-2	+2	+2	+8
	Oct.-Nov.	-0.9	-2	-0.9	-2	+3
	Current	-2	-4	-3	-6	-1
V	Aug.-Sept.	-0.9	-3	+2	-6	-3
	Oct.-Nov.	-0.7	-2	+2	-6	-0.8
	Current	-0.7	-2	0	-2	-2
W	Aug.-Sept.	-0.5	0	-3	+5	+8
	Oct.-Nov.	-1	-2	-3	+2	+5
	Current	-0.7	-0.8	-6	-0.3	+3
X	Aug.-Sept.	+0.2	+0.8	-4	+17	+7
	Oct.-Nov.	--	--	--	--	--
	Current	--	--	--	--	--

TABLE XXIX

SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL RESULTS FOR DECEMBER, 1963 AND JANUARY, 1964[a]

	Average Percentage Difference Between Institute and Mill Test Results									
	±0.5	±1	±2	±3	±4	±5	±7.5	±10	±12.5	±16
Basis weight										
Number of mills	8	17	18	19						
Percentage of mills	42.1	89.5	94.7	100.0						
Caliper										
Number of mills	0	2	14	16	19					
Percentage of mills	0.0	10.5	73.7	84.2	100.0					
Bursting strength										
Number of mills	1	6	11	13	16	17	18	18	19	
Percentage of mills	5.3	31.6	57.9	68.4	84.2	89.5	94.7	94.7	100.0	
Tearing strength, in										
Number of mills	4	4	7	7	8	10	12	15	16	17
Percentage of mills	23.5	23.5	41.2	41.2	47.1	58.8	70.6	88.2	94.1	100.0
Tearing strength, cross										
Number of mills	2	5	9	12	14	14	16	17		
Percentage of mills	11.8	29.4	52.9	70.6	82.4	82.4	94.1	100.0		

[a]Based on the average percentage differences between Institute and mill data given in Table XXVIII.

TABLE XXX

PRECONDITIONING AND CONDITIONING DATA FOR MILL TESTS

December, 1963 and January, 1964

Mill Code	Preconditioning			Conditioning		
	R.H., %	Temp., °F.	Time, hr.	R.H., %	Temp., °F.	Time, hr.
A	59	--	--	45-81	68-78	--
B	33-35	77-78	8	48-52	71-73	16
C	35	73	48	50	73	48
D	50	70	72-412	--	--	--
E	--	--	--	50	73	48+
F	50	73	24	50	73	24
G[a]						
H	50	70-72	96-120	50	70-72	96-360
I	50	73	24	50	73	24
J[a]						
K	--	--	--	46-48	74-75	48
L	50	73	24	50	73	24
M	--	--	--	50	73	24-192
N	--	--	--	52-56	70	1
O	48-50	72-74	48	48-50	72-74	3
P	--	--	--	50	73-75	24
Q	50	72	24	--	--	--
S	50	73	24	50	73	24
T[a]						
U	50	73	72-96	50	73	72-96
V	36-42	67-78	0.5	50	72-73	24
W	--	--	--	55	71-72	--
X[a]						

[a]No samples were submitted for evaluation during the current period.

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